

WHAT IS CLAIMED IS:

1. A control apparatus for an automatic transmission which executes a neutral control by which an input clutch that transmits driving force from a driving source to the automatic transmission is released when conditions, being i) a shift lever is in a position corresponding to a forward speed range, ii) an accelerator operation is not being performed, iii) a brake operation is being performed, and iv) a vehicle speed is equal to, or less than, a predetermined vehicle speed, are fulfilled, comprising:

a controller which stores a hydraulic pressure command value for the input clutch while the neutral control is being executed, and which calculates, based on the stored hydraulic pressure command value, the hydraulic pressure command value for the input clutch when the neutral control is cancelled so that a normal control is restarted in a case where the conditions become unfulfilled.

2. The control apparatus for an automatic transmission according to claim 1, wherein a torque converter is provided in the automatic transmission; and the controller stores, as a hydraulic pressure base value, the hydraulic pressure command value for the input clutch for enabling the torque converter to achieve one of a predetermined speed ratio and a predetermined speed difference while the neutral control is being executed, and calculates the hydraulic pressure command value for the input clutch by adding a first predetermined value to the hydraulic pressure base value.

3. The control apparatus for an automatic transmission according to claim 2, wherein the controller calculates the hydraulic pressure command value for the input clutch by adding a second predetermined value, which is larger than the first predetermined value, to the hydraulic pressure base value before calculating the hydraulic pressure command value by adding the first predetermined value to the hydraulic pressure base value.

4. The control apparatus for an automatic transmission according to claim 2, wherein the controller stores, as the hydraulic pressure base value, the hydraulic pressure command value for the input clutch which is calculated through a feedback control such that the torque converter achieves one of a predetermined speed ratio and a predetermined speed difference while the neutral control is being executed.

5. A control apparatus for an automatic transmission which executes a neutral control by

which an input clutch that transmits driving force from a driving source to the automatic transmission is released when conditions, being i) a shift lever is in a position corresponding to a forward speed range, ii) an accelerator operation is not being performed, iii) a brake operation is being performed, and iv) a vehicle speed is equal to, or less than, a predetermined vehicle speed, are fulfilled, comprising:

storing means for storing a hydraulic pressure command value for the input clutch while the neutral control is being executed; and

calculating means for calculating, based on the stored hydraulic pressure command value, the hydraulic pressure command value for the input clutch when the neutral control is cancelled so that a normal control is restarted in a case where the conditions become unfulfilled.

6. The control apparatus for an automatic transmission according to claim 5, wherein a torque converter is provided in the automatic transmission; the storing means stores, as a hydraulic pressure base value, the hydraulic pressure command value for the input clutch for enabling the torque converter to achieve one of a predetermined speed ratio and a predetermined speed difference while the neutral control is being executed; and the calculating means calculates the hydraulic pressure command value for the input clutch by adding a first predetermined value to the hydraulic pressure base value.

7. The control apparatus for an automatic transmission according to claim 6, wherein the calculating means calculates the hydraulic pressure command value for the input clutch by adding a second predetermined value, which is larger than the first predetermined value, to the hydraulic pressure base value before calculating the hydraulic pressure command value by adding the first predetermined value to the hydraulic pressure base value.

8. The control apparatus for an automatic transmission according to claim 6, wherein the storing means stores, as the hydraulic pressure base value, the hydraulic pressure command value for the input clutch which is calculated through a feedback control such that the torque converter achieves one of a predetermined speed ratio and a predetermined speed difference while the neutral control is being executed.

9. A control method for an automatic transmission which executes a neutral control by which an input clutch that transmits driving force from a driving source to the automatic

transmission is released when conditions, being i) a shift lever is in a position corresponding to a forward speed range, ii) an accelerator operation is not being performed, iii) a brake operation is being performed, and iv) a vehicle speed is equal to, or less than, a predetermined vehicle speed, are fulfilled, comprising the steps of:

storing a hydraulic pressure command value for the input clutch while the neutral control is being executed; and

calculating, based on the stored hydraulic pressure command value for the input clutch, the hydraulic pressure command value for the input clutch when the neutral control is cancelled so that a normal control is restarted in a case where the conditions become unfulfilled.

10. The control method for an automatic transmission according to claim 9, further comprising the steps of:

storing, as a hydraulic pressure base value, the hydraulic pressure command value for the input clutch for enabling the torque converter to achieve one of a predetermined speed ratio and a predetermined speed difference while the neutral control is being executed; and

calculating the hydraulic pressure command value for the input clutch by adding a first predetermined value to the hydraulic pressure base value.

11. The control method for an automatic transmission according to claim 10, further comprising the step of:

calculating the hydraulic pressure command value for the input clutch by adding a second predetermined value, which is larger than the first predetermined value, to the hydraulic pressure base value before calculating the hydraulic pressure command value for the input clutch by adding the first predetermined value to the hydraulic pressure base value.

12. The control method for an automatic transmission according to claim 10, wherein the hydraulic pressure command value for the input clutch which is calculated such that the torque converter achieves one of a predetermined speed ratio and a predetermined speed difference is stored as the hydraulic pressure base value while the neutral control is being executed.